National Cancer Institute

A Snapshot of Breast Cancer

Incidence and Mortality

In the United States, breast cancer is the most common non-skin cancer and the second leading cause of cancer-related death in women. Each year, a small number of men also are diagnosed with and die from breast cancer. Although the overall rate of diagnosis of breast cancer increased in the 1990s, it began decreasing in 2000 and has remained steady in recent years. The overall breast cancer death rate has dropped steadily over the past 20 years.

The incidence of breast cancer is highest in white women for most age groups, but African-American women have higher incidence rates before 40 years of age and higher breast cancer mortality rates than women of any other racial/ethnic groups in the United States at every age. The gap in mortality between African-American and white women is wider now than it was in the early 1990s.

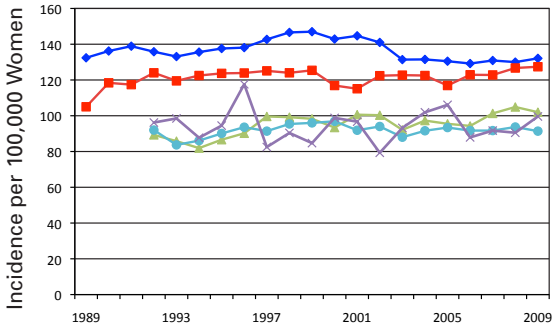
Studies have identified numerous risk factors for breast cancer, including increasing age, personal or family history of breast cancer, reproductive and menstrual history, the presence of certain genetic changes, history of radiation therapy to the chest, long-term use of menopausal hormone therapy, history of taking DES, increased breast density, obesity, and lack of exercise. Factors that may reduce the risk of breast cancer include engaging in physical activity, reducing alcohol intake, and, for women who are at high risk, treatments that reduce estrogen levels or block its activity. Mammograms and clinical breast exams are commonly used to screen for breast cancer. Standard treatment options for breast cancer include surgery, radiation therapy, chemotherapy, hormone therapy, and targeted therapy.

It is estimated that approximately $16.5 billion[1] is spent in the United States each year on breast cancer treatment.

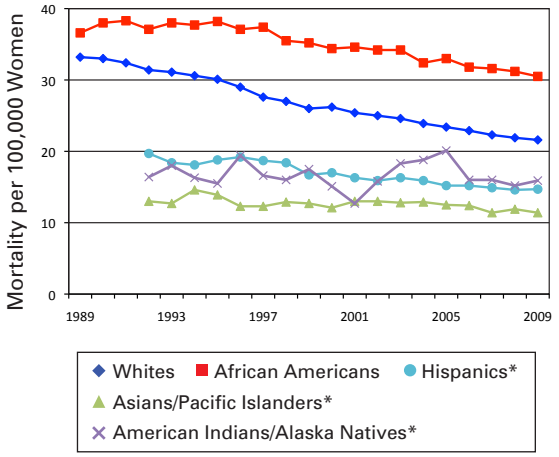
Source for incidence and mortality data: Surveillance, Epidemiology, and End Results (SEER) Program and the National Center for Health Statistics. Additional statistics and charts are available at the SEER Web site.

[1] Cancer Trends Progress Report, in 2010 dollars.

U.S. Breast Cancer Incidence



U.S. Breast Cancer Mortality



* Incidence and mortality data not available before 1992.

Trends in NCI Funding for Breast Cancer Research

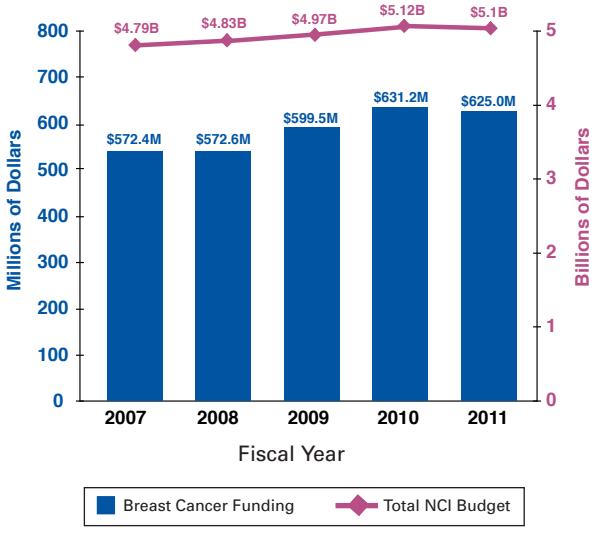
The National Cancer Institute's (NCI) investment[2] in breast cancer research increased from $572.4 million in fiscal year (FY) 2007 to $631.2 million in FY 2010 before decreasing to $625.0 million in FY 2011. In addition to this funding, NCI supported $112.4 million in breast cancer research in FY 2009 and 2010 using funding from the American Recovery and Reinvestment Act (ARRA).[3]

Source: NCI Office of Budget and Finance.

[2] The estimated NCI investment is based on funding associated with a broad range of peer-reviewed scientific activities. For additional information on research planning and budgeting at the National Institutes of Health (NIH), see About NIH.

[3] For more information regarding ARRA funding at NCI, see Recovery Act Funding at NCI.

NCI Breast Cancer Research Investment



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

If you are reading a paper copy of this Snapshot: PDF Snapshots with hyperlinks to additional information and resources can be found online at: http://www.cancer.gov/aboutnci/servingpeople/cancer-statistics/snapshots

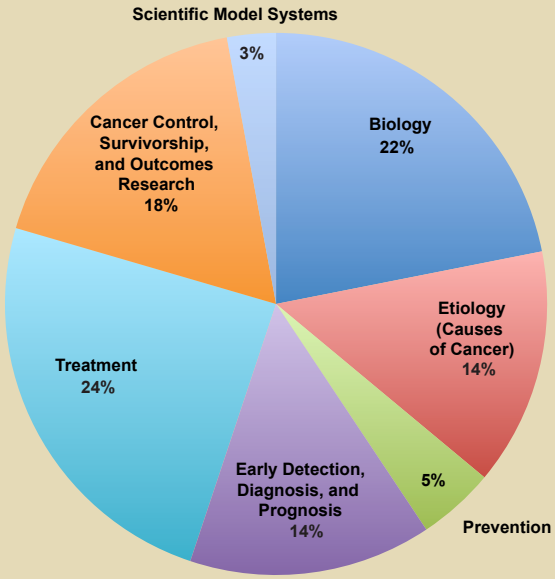
Examples of NCI Activities Relevant to Breast Cancer

- The **Trial Assigning Individualized Options for Treatment (Rx)**, or TAILORx, is determining whether genes associated with risk of recurrence in women with early-stage breast cancer can be used to identify the most appropriate and effective treatments for these women.
- The **Integrative Cancer Biology Program** combines experimental and clinical research with mathematical modeling to gain new insights into cancer biology, prevention, diagnostics, and treatments. Six centers are developing breast cancer computational models.
- NCI and the National Institute of Environmental Health Sciences are jointly funding four **Breast Cancer and the Environment Research Centers (BCERCs)** to conduct transdisciplinary research on the effects of early environmental exposures on breast development and breast cancer risk.
- The **Breast Cancer Risk Assessment Tool** helps health professionals assess a woman's risk of developing invasive breast cancer. The interactive tool is updated as new research results become available and has been updated to include African-American women and Asian and Pacific Islander women in the United States.
- The **Breast Cancer Surveillance Consortium** is a research resource for investigators assessing breast cancer screening practices and their relation to stage at diagnosis, survival, and breast cancer mortality. Seven mammography registries that link to pathology and/or tumor registries are part of the Consortium.
- Twelve breast-cancer-specific **Specialized Programs of Research Excellence (SPOREs)** are moving results from the laboratory to the clinical setting. The SPOREs support research in the development of novel agents, technologies, and markers for better diagnosis, prognosis, screening, prevention, and treatment of breast cancer.

Additional Resources for Breast Cancer

- The **What You Need To Know About™ Breast Cancer** booklet contains important information about breast cancer, including treatment and supportive care. Information specialists also can answer questions about cancer at 1-800-4-CANCER.
- The NCI **Breast Cancer Home Page** directs visitors to up-to-date information on breast cancer treatment, prevention, genetics, causes, screening, testing, and related topics.
- The **BRCA1 and BRCA2: Cancer Risk and Genetic Testing Fact Sheet** provides an overview of inherited risks of breast and ovarian cancers and pros and cons of genetic testing for breast and ovarian cancer risk.
- Information on treatment options for breast cancer is available from **PDQ**, NCI's comprehensive cancer database.
- **Clinical trials for breast cancer** can be found in NCI's list of clinical trials.

NCI Breast Cancer Research Portfolio



Percentage of Total Dollars by Scientific Area
Fiscal Year 2011

Data source: The NCI Funded Research Portfolio. Only projects with assigned scientific area codes are included. A description of relevant research projects can be found on the NCI Funded Research Portfolio Web site.

Selected Advances in Breast Cancer Research

- Scientists discovered **a new biological role for BRCA1 and a potential therapeutic target** in BRCA1-mutant breast tumors. Published September 2011.
- **Combining chemotherapy with the targeted agent trastuzumab extends survival** in women with HER2-positive breast cancer. Published October 2011.
- Researchers discovered an **inherited genetic mutation in a gene whose product interacts with BRCA1 and is associated with increased risk** of breast cancer in some families. Published February 2012.
- A gene expression study revealed a **microRNA signature that differentiates invasive breast ductal carcinoma** from ductal carcinoma *in situ*. Published February 2012.
- Click here to access selected free full-text journal articles on advances in NCI-supported research relevant to breast cancer. Click here to search for additional scientific articles or to complete a search tutorial on PubMed.